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A F T E R N O O N S E S S I O N

1:29 p.m.

THE VIDEO OPERATOR: This is videotape number 2, the continuation of the deposition of Dr. Kenneth Houghton. The time on the screen is 1:29:42. You're on the record.

K E N N E T H S. H O U G H T O N,

resumed, having been previously duly sworn, was examined and testified further as follows:

CONTINUED EXAMINATION

BY MR. PAYTON:

Q. Dr. Houghton, you also made reference to a Dr. Carchman as being someone who would be knowledgeable about nicotine research at Philip Morris. Do you recall that?

A. Yes.

Q. And who is Dr. Carchman?

A. Richard Carchman is the director of scientific affairs reporting to the senior vice president of R&D.

Q. And what are the responsibilities of the director of scientific affairs?

A. The director of scientific affairs is responsible for providing information, guidance

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in certain areas of interest for the tobacco business, both for the domestic business as well as for the international business.

Q. Do you know when Dr. Carchman became the head of -- became the director of scientific affairs?

A. What I recall is I believe it happened at the same time when Dr. Charles took his retirement.

Q. Around 1991 is your best memory?

A. Yes, that's what I recall.

Q. Was Dr. Carchman at Philip Morris before that?

A. Yes, he was.

Q. Do you know what he was before he became the director of scientific affairs?

A. I'm -- I don't recall exactly what his title was at that time.

Q. He was in R&D, though?

A. Yes, he was.

Q. Was he in a supervisory position?

A. I'm not sure exactly before he became the director of scientific affairs. At least some time prior to that he was in a supervisory

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position.

Q. And as the director of scientific affairs, does Dr. Carchman have responsibility for any research?

MR. MURPHY: I object to the form of the question; vague and ambiguous. You may answer.

A. What do you mean by -- by any accountability for -- for research, or --

Q. Scientific affairs is, I think you referred to it as a division; is that what it is?

A. It's a directorate today.

Q. Okay. It's a directorate. And Dr. Carchman as the head of scientific affairs reports directly to you; is that correct?

A. That is correct.

Q. And does scientific affairs, the directorate of scientific affairs, does it conduct research?

A. It does not do research within Philip Morris U.S.A. itself.

Q. Okay. Then could you explain again what it does?

A. Okay. What scientific affairs

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01:33:14 directorate does is monitor issues for Philip
01:33:20 Morris such as ingredients. They would manage
01:33:26 the ingredient, annual ingredient submission to
01:33:34 the Department of Health & Human Services.
01:33:38 Dr. Carchman acts as a quality assurance expert
01:33:46 on testing done at INBIFO.
01:33:46 Q. What's INBIFO?
01:33:52 A. INBIFO is our biological research
01:34:00 laboratory located in Cologne, West Germany.
01:34:02 MR. MURPHY: Were you finished with
01:34:04 your answer, Dr. Houghton?
:34:04 A. Those are some of the activities of
01:34:04 scientific affairs.
01:34:32 Q. Have you discussed nicotine-related
01:34:34 issues with Dr. Carchman?
01:34:38 A. Over the last few years I, you know,
01:34:42 I have conversations with him essentially all the
01:34:50 time and I surely have discussed nicotine, the
01:34:54 subject of nicotine with Dr. Carchman during that
01:34:54 period of time.
01:35:38 Q. Now, when we looked at what's been
01:35:40 marked as Houghton Exhibit 2, which is the long
01:35:42 list of nicotine-related research, you can look
:35:44 at it if you want but I don't think you're going

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to need to to answer my question.

A. Okay.

Q. There are items in there that indicate you approved various projects, it just says approval, Houghton, approval, Houghton, and I think you recall approving things you believe for publication. Do you recall this?

A. Yes. But I don't -- I wouldn't say that that's the equivalent to approving projects to be done, which is the inference I -- I got from you.

MR. MURPHY: What entries are you referring to, John?

Q. Go back to Page 33. This is the same entry we've seen before at the bottom. It shows you, K. Houghton, approval of manuscript and the manuscript that we noticed before, "Comparison of Theoretical and Experimental Ionization Potentials of Nicotine and Related Molecules," September 4, 1986. I actually have a general question about what were the criteria that you would use or that Philip Morris R&D would use in approving a report or a paper or a study for publication?

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MR. MURPHY: I object to the form of the question. You may answer the question.

Q. Do you understand my question?

A. Would you word it just one more time. Thanks.

Q. What were the criteria you would use in deciding whether or not to approve something for publication?

MR. MURPHY: How are you using the word you, John, Philip Morris or this witness on occasions when he was involved?

Q. You, Dr. Houghton.

MR. MURPHY: Personally.

Q. When you would approve, yes, when you were the head of R&D and you would approve a study or report or research for publication.

A. Okay. What we have is a manuscript review board and that -- the role of that manuscript review board is to review potential manuscripts for publication for the quality of the science, the -- the way it is written.

On top of that they would come back and after having reviewed that and the presentation now has been updated by, or the

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01:39:08 manuscript, by the author or authors, they would
01:39:14 then circulate that for evaluation by the senior
01:39:18 members of R&D's leadership team, and after that
01:39:22 was done with any recommendations on how to
01:39:26 improve it or review of that subject matter,
01:39:30 including reviewing it to make sure that it did
01:39:34 not contain trade secret information or
01:39:38 information that might be helpful to our
01:39:42 competitors, okay, they would review that, come
01:39:48 back with any recommendations they may have or
01:39:50 else sign off that they think that this is a good
:40:00 piece of literature and then it would come to me
01:40:02 with the final approval on that, having all of
01:40:04 this background done, including the
01:40:06 recommendations from my direct reports, and in
01:40:10 approving it I would be approving normally more
01:40:12 than one thing. I'd be approving not just the
01:40:16 fact that it could be submitted for publication,
01:40:18 but in many cases I'm approving the travel
01:40:24 associated with first presenting it in a
01:40:28 scientific meeting, say, and then the approval to
01:40:34 have it published either as a finished document
01:40:40 or else as part of a synopsis that might go into
:40:44 explaining what's going to be presented at -- at

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01:40:46 wherever it's going to be presented.

01:40:48 So what I'd be doing is approving not

01:40:52 just the potential publication, but also

01:40:58 presentation and travel which may include even

01:41:00 international travel to present a paper.

01:41:04 Q. So when you were the head, when you

01:41:08 are the head of R&D you're the final approval on

01:41:12 publication?

01:41:14 MR. MURPHY: Object to the form of

01:41:18 the question. You may answer.

01:41:20 A. Well, it would have been reviewed and

:41:24 recommendations coming from people working for

01:41:26 me, but I would be approving that it could be

01:41:28 submitted for publication, presentation and

01:41:36 travel associated with that. Especially

01:41:38 international travel, I'm the only one who can

01:41:40 authorize international travel within R&D.

01:41:52 Q. And did that criteria include whether

01:41:58 or not the content of the paper or report or

01:42:04 study was not favorable to Philip Morris?

01:42:06 MR. MURPHY: Object to the form of

01:42:06 the question. You can answer.

01:42:08 A. I've also -- I think I already

:42:14 covered what the assessment was. The assessment

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was was it good science, was it appropriate to publish this, and is this the right environment in which to present or publish it? But it was not reviewed, as you said, to see if it was good to Philip Morris or whatever your reference was.

Q. That wasn't taken into account?

A. No. What was taken into account was the quality of the work and whether this is the proper way to present it or whether it was really quality enough to be able to get through a peer review journal or did more work have to be done, something like that, but not on whether or not it was good for Philip Morris.

Q. Do you know Dr. Victor Denoble?

A. I do not know him, no.

Q. Do you know of him?

A. Only from I guess after the period we're talking about or about that time when he was at the Waxman hearings. I saw part of his testimony. I --

Q. Do you --

A. I've never met him.

Q. Do you know if he ran the behavioral research laboratory at Philip Morris?

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A. I don't know who ran it. I just -- -- my feeling is that he didn't run it, but worked in it.

Q. Are you aware that at some point in time that laboratory was closed?

MR. MURPHY: Objection. Are you asking him is he aware from his role as a television viewer of the Waxman Committee hearings or are you asking him whether he is aware in any other capacity?

Q. Are you aware in your capacity as an executive at Philip Morris that Dr. Denoble's laboratory was closed?

MR. MURPHY: Objection to form. You can answer.

A. During the period of time I've been in R&D I've heard conversation that there -- that this laboratory was closed. I don't know why, I don't know what the decisionmaking was.

Q. Does R&D presently have a behavioral research laboratory?

A. No, we do not. My answer to that question was based upon my understanding of the kind of work that they did, we do not have that

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kind of laboratory inside Philip Morris today.

Q. What do you understand the behavioral research laboratory used to do?

A. Oh, I just have a general understanding from what Dr. Denoble presented at the hearing where he was, if I recall correctly, he was testing, doing animal testing I believe to -- what's it called -- for reinforcing.

Q. Is it your understanding that his research related to nicotine addiction?

MR. MURPHY: You're asking him to testify as to what he understood Dr. Denoble --

MR. PAYTON: I'm asking him --

MR. MURPHY: -- to be saying at the Waxman Committee hearings?

Q. Do you have an understanding as to whether or not what Dr. Denoble's laboratory was looking into was nicotine addiction?

A. My understanding from the hearings is that Dr. Denoble's laboratory was looking into properties of nicotine, and if I recall correctly, his results, if I recall correctly, was that it was not addictive.

Q. Outside of what you learned from the

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Waxman hearings, which are the hearings you're referring to now; is that right?

A. That's where I heard Dr. Denoble speak, yes.

Q. Outside of anything you learned from those hearings, do you know whether or not Dr. Denoble was looking into nicotine addiction?

A. I don't know.

Q. Dr. Houghton, are you aware of any research or studies that Philip Morris has itself performed that relates to nicotine addiction?

MR. MURPHY: Prior to March 24, 1994?

MR. PAYTON: Yes.

MR. MURPHY: You can answer.

A. I don't know of any.

MR. PAYTON: Would you mark this as Houghton Exhibit 4, please.

(Houghton Exhibit 4 for identification, document entitled "Quarterly smoking and health report - October-December 1983, dated January 17, 1984, to Dr. M. Hausermann, from T.S. Osdene, production numbers PA 730501 through PA 730507 and 2021112001

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through 2021112017.)

01:48:36 Q. Dr. Houghton, you've just been handed an exhibit that's been marked Houghton Exhibit 4, a document dated January 17, 1984, from T.S. Osdene to Dr. M. Hausermann. It has production number PA 730501 through PA 730507 or 2021112001 through 2017.

01:49:18 This document is entitled as a subject "Quarterly smoking and health report - October-December 1983." Dr. Houghton, this document, I will represent to you, was produced from your files. Do you want to take a look through it, see if you recognize it?

01:49:32 A. When you say your files, you mean my files, Ken Houghton's files?

01:49:36 Q. Yes.

01:49:40 A. Hmm. I don't know how it could be Ken Houghton's files. This thing was before -- this was a couple of years before I even came to R&D. This is 1984.

01:49:52 Q. I understand that.

01:50:52 MR. MURPHY: Just a moment. I believe, Mr. Payton, that this document was produced from Mr. Serrano's files, not

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Dr. Houghton's files. I may be mistaken, but I'm fairly certain that that's the case.

MR. PAYTON: We'll attempt to verify that, but I can tell you from the indices that we had we believe it came from Dr. Houghton's files.

MS. ROBBINS: We're trying to verify that as well, John.

Q. Dr. Houghton, do you recall receiving quarterly smoking and health reports?

A. No, I don't.

MS. ROBBINS: Can we have just one minute, John.

MR. MURPHY: Just one moment, John. If this is a document that was part of the April 21, 1995 Philip Morris production, I don't know whether -- for certain whether it was or wasn't, it does not fall within the Bates range for Dr. Houghton's files on that production as best I can tell.

MR. PAYTON: We can try and verify that. We have received, you know, documents at different points in time. I don't know if this is an April 21 document.

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MR. MURPHY: Let me check that. Based upon the index, checking one of the entries for Dr. Houghton, it appears that it is within the range that is identified on the index that we provided to ABC. However, based on my notes of another index, I'm not sure that that is correct. I cannot sit here and represent to you that the index that we provided to you on this point is in error, but it is my belief that it may be in error. As to this document number, the point being that I don't know that we can assume one way or the other at the moment whether this document in fact was produced from Dr. Houghton's files, although it will be possible for us to find that out for you.

MR. PAYTON: Is there a later list that identifies from whose files the different documents came that we ought to get?

MR. MURPHY: No. I just believe that this list that was prepared as an accompaniment to the April 21 cover letter may have been mistaken with respect to this range for Dr. Houghton's files. It may be simply a typographical error, but I'm going to have to

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check that before I represent that to you.

MS. ROBBINS: You can proceed with your questions without knowing one way or the other whether it was produced from Dr. Houghton's files and he can tell you what he knows about the document.

Q. In this time period, which is January 1984, you were in Switzerland, as I recall, as director of R&D for Philip Morris International; is that correct?

A. Yes.

Q. Do you recall receiving as part of a distribution list some documents that were generated by Philip Morris Richmond R&D?

A. I -- I don't recall receiving some sort of standard. There may have been some reports that came to me, I just don't recall if I was on some sort of distribution that would have provided this document.

Q. You see the cc list on this document? The document is from T.S. Osdene to Dr. Hausermann. Do you recall if in 1984 both Dr. Hausermann and Dr. Osdene were in Richmond?

A. That's correct.

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01:56:26 Q. Do you see the cc list?

01:56:28 A. Yes.

01:56:30 Q. Could you just go down that list and
01:56:34 see if you recognize anyone who was in Europe at
that time?

01:56:48 A. There isn't anybody on -- on this cc,
01:56:52 the list that it was sent to, who was in Europe
01:56:56 at that time, and my copy here that you've given
01:57:02 me says this was J.A. Remington copy on the front
01:57:04 page.

01:57:06 Q. That's correct, it says that on the
:57:10 front. It's stamped "Received January 19, 1984,
01:57:10 J.A. Remington."

01:57:12 A. And he was in the United States.

01:57:12 Q. Did you know him?

01:57:14 A. Yes.

01:57:14 Q. Okay. Who was he?

01:57:20 A. He was -- he's a -- he may have been
01:57:30 senior -- in 1984. He may have been executive
01:57:34 vice president of operations at that time.

01:57:36 Q. Operations?

01:57:42 A. This is the position in New York, and
01:57:44 I'm just not absolutely certain, but I believe
:57:48 that was the time frame when he was in that

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position.

Q. And did you know him at that time?

A. I had known him prior to that when I was in manufacturing and he was senior vice president, manufacturing.

Q. I believe you just quickly flipped through this document; is that correct?

A. It was quick.

Q. Well, just on the basis of the quick flip through, you didn't recall having seen any document like this or this document?

A. I don't recall having seen this document or something like it before -- I have no -- as we sit here I don't have a recollection of having seen this.

Q. Do you know Jack Henningfield?

A. Do I know Jack Henningfield?

Q. Yes.

A. No, I don't. I've heard of him.

Q. You know who he is?

A. Yes.

Q. Would you just go to the third fourth page from the end. There appears to be an abstract of an article by Jack Henningfield, and I don't want

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you to read it, I want you to look at it and see if you remember having seen that abstract before? You see where I'm pointing to, "Human Pharmacology of Nicotine," Henningfield, Jack and Jasinski, Donald, Psychopharmacology Bulletin?

A. Let me read through the abstract and I'll tell you if I recognize it. I don't recall having -- having seen this abstract before.

Q. Okay. And you're not familiar with the article?

A. No, I don't recall having read it.

MR. PAYTON: Would you mark this as Houghton Exhibit 5.

(Houghton Exhibit 5 for identification, memorandum entitled "Quarterly report July to September 1975, research department," to Mr. Resnik, from Mr. Osdene, dated September 30, 1975, production number PA 636540 through PA 636543 or 1001515060 through 1001515063.)

Q. Dr. Houghton, you've just been handed a document that is marked as Houghton Exhibit 5, a copy of a memo dated September 30, 1975 from T.S. Osdene to Mr. F.E. Resnik, entitled

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"Quarterly report July to September 1975, research department." It has production numbers PA 636540 through PA 636543 or 1001515060 through 5063.

I'll represent to you that given the indices that Philip Morris has produced in connection with its production of documents, this document too was produced to us from your files.

MR. MURPHY: I do not believe that's the case, John, and it may, as I mentioned before, simply be that there was a mistake with respect to that range for Dr. Houghton's files. This document indicates on its face that it was received on September 30, 1975 and stamped F.E. Resnik. There's no indication on the document that it was sent to Dr. Houghton, and I do not believe that in fact this does come from Dr. Houghton's files. If you'd like to take a short break, I can try to --

MR. PAYTON: Let me just say something on the record and maybe we should take a short break. Clearly, there are documents that were not contemporaneously distributed to everyone who now have copies in their files, and

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we have had some documents at other depositions, for example, there was a document that was a study, it is one of the Lilly exhibits that I believe we looked at that was signed OUT off to Dr. Carchman, but it was produced well before Dr. Carchman was at Philip Morris.

MR. MURPHY: I understand that.

MR. PAYTON: So the question is was this in Dr. Houghton's files. I am not raising this to say that he was a recipient at the time. But the question is whether or not the index we got or whatever, the chart, that ~~indicates~~ reflects from whose files various ranges of documents were produced is correct when it identifies this as having come from Dr. Houghton's files.

MR. MURPHY: And that's what I'm saying that I would like an opportunity to check, because based on my own belief, I do not believe this came from Dr. Houghton's files contemporaneously or after the fact, but I would like to check that.

MR. PAYTON: Let's go off the record.

THE VIDEO OPERATOR: We're going off

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the record. The time on the screen is 2:04:42.

(A recess was taken.)

THE VIDEO OPERATOR: We're back on the record. The time on the screen is 2:38:20.

MR. PAYTON: Off the record we have attempted to figure out from whose files two documents, and then a larger question the range of the production that would relate to Dr. Houghton, we're trying to identify all of that. The two documents, the first document is a document that I identified as PA 730501 through PA 730507 and 2021112001 through ~~2021112~~2017. As I understand it, you believe that that document was identified as coming from Dr. Houghton's files in error and you don't believe that it came from his files?

MR. MURPHY: That's correct. I believe that the index that was provided is in error in that respect and I've given you a corrected range for that index.

MR. PAYTON: The other document specifically that we were looking at was a document that had a production number PA 636540 through 43, has a Philip Morris production number

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of 1001515060 through 5063 and you've represented that that is also not from Dr. Houghton's files, and on that one I agree with you, that I was incorrect when I indicated that I believe, we believe that that came from his files. We checked. We believe this document came from central files.

MR. MURPHY: This document was identified on the index that we provided as having come from central files.

MR. PAYTON: Right. The other document was identified as coming from Dr. Houghton's files but you believe that identification was in error?

MR. MURPHY: That's correct. I believe that the correct range for Dr. Houghton's files should have been 2020153288 through 2020153292 for the April 21, 1995 Philip Morris production. I do not have, as I mentioned to you off the record, with me a range for a subsequent production that was made of documents from Dr. Houghton's files last week, which production was made in response to the court's recent ruling with respect to requests 19 and 20 of the ABC

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first set of document requests.

MR. PAYTON: Now, the document that, the January 17, 1984 document I think I actually marked it as Exhibit 4. This is the document where it was -- it shows on the production logs as being from Dr. Houghton's files. You believe that's in error. Do you know -- you don't know whose files it is from, I take it?

MR. MURPHY: I told you I believe that based upon my call back to my office that we believe it is from Mr. Serrano's files and if that is the case, I will be providing you with a supplemental range that should have been included with respect to the April 21, 1995 production,. If that range was omitted it was completely inadvertent.

I do know, though, based upon my check, that the range in which this document falls is not a range that includes Dr. Houghton's file materials.

MR. PAYTON: OKAY, As of right now it doesn't include the range that was provided for Mr. Serrano either?

MR. MURPHY: That's correct.

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MR. PAYTON: You may give us an additional range.

MR. MURPHY: There may be an additional or a third, we provided three ranges in connection with Mr. Serrano in connection with the April 21 production. There may be a third range, I believe that there is, but I will have to get you a beginning and ending number on that range.

MR. PAYTON: I'd actually ask that as soon as possible you verify all of the ranges on there because I can see us -- I have other documents that it looks like we're going to come to the exact same spot here that I was going to use at the deposition of Dr. Houghton and it may be that a whole series of them are Mr. Serrano's or someone else's, okay, and I would have changed what we did if I had known this. I would have deposed Mr. Serrano, as you'll see as we go through this. So I need to know as soon as you can what the right range is. If there's a correction let me know. So I can -- we see where we are.

MR. MURPHY: We'll undertake to do that as quickly as possible. As I said, the

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range for Dr. Houghton's files has now been corrected.

Q. Dr. Houghton, do you know when Mr. Serrano began working at Philip Morris?

A. I don't know when he first came to work at Philip Morris. I would guess and -- it was in the early seventies or, I don't know, '69, '70, '71, that ballpark, but I don't recall exactly. I would have known at one time.

Q. Do you know a B. Reuter, R-e-u-t-e-r?

A. Yes.

Q. Who is that?

A. Barbara Reuter works for Philip Morris U.S.A.

Q. Do you know what her position is?

A. At the time of -- as of '94 or right now?

Q. How about '92?

A. '92. I think she was in '92 still an assistant to Mark Serrano in operations.

Q. And he was the vice president for operations?

A. His title was executive vice president, operations, Philip Morris U.S.A.

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Q. Does that place him right below the president and CEO, is that what the spot of executive vice president was then?

MR. MURPHY: I object to the form of the question. You can answer.

A. In that position he reported at that time to the president of Philip Morris U.S.A.

MR. PAYTON: Would you mark this as Houghton Exhibit 6.

(Houghton Exhibit 6 for identification, document entitled "Confidential," "Table - Competitive analysis, first draft organization, first draft production to follow," production numbers PA 730437 through PA 730457 or 2020154466 through 2020154486.)

Q. Dr. Houghton, you've just been handed what's been marked as Houghton Exhibit 6 a document that says at the top "Confidential" and it says "Table" and it says "Competitive analysis, first draft organization, first draft production to follow." It says in the bottom right-hand corner B. Reuter, you see that? It's marked highly confidential information. It has production numbers PA 730437 through PA 730457 or

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Philip Morris production numbers 2020154466
through 2020154486.

Dr. Houghton, could you look through this document, just turn through it to see if you recognize this document. Have you seen any of that before?

A. Not that I -- no.

MR. PAYTON: This is the same type of document, it's in the range that we were originally told was from his files. So I need to know from whose files this document came.

MR. MURPHY: It is not from Dr. Houghton's files. As I mentioned to you the range on the index provided was incorrect in that respect. I will find out from whose files it comes.

MR. PAYTON: Let me just say where I think we are. Right now, you do not believe it is from Dr. Houghton's files. Dr. Houghton doesn't recognize the document. You're not sure from whose files it is at this point in time.

MR. MURPHY: Right. I was able to confirm over the course of the break what I believe to be the correct range for

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Dr. Houghton's files. I do not know from whose files this particular document was produced as I sit here. I can find out I believe rather quickly. I'm just going to have to check, John, with New York with the person who prepared the index. If you'd like me to, I can do that right now.

MS. ROBBINS: Let's go off the record for a minute.

THE VIDEO OPERATOR: We're going off the record. The time is 2:55:59.

(A recess was taken.)

THE VIDEO OPERATOR: We're back on the record. The time on the screen is 3:46:51.

MR. PAYTON: Let me just ask you a question, Barbara. Are any of the files from whom those documents are produced Dr. Houghton's files?

MS. ROBBINS: Other than the correction we gave you before?

MR. PAYTON: The correction before was to exclude from Dr. Houghton's files documents.

MR. MURPHY: That's right.

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MS. ROBBINS: Right.

MR. PAYTON: From that category of documents you said were not being produced from his files or we weren't sure --

MS. ROBBINS: None of them are from Dr. Houghton's files.

MR. PAYTON: I'm going to go ahead. Would you mark this as Exhibit 7.

(Houghton Exhibit 7 for identification, document, to Dr. Peter Martin, from Melissa Jeltema, dated June 10, 1986 subject, testing of denicotinized cigarettes, production numbers PA 725480 and PA 725481 or 2001260246 through 2001260247.)

Q. Dr. Houghton, I've just handed you a document that's been marked Houghton Exhibit 7 I believe, a document dated June 10, 1986. It's from Melissa Jeltema to Dr. Peter Martin, subject, testing of denicotinized cigarettes, production numbers PA 725480 to PA 725481 or 2001260246 through 0247. You see on the second page that you are cc'd on this document.

Dr. Houghton, do you know who Melissa Jeltema is?

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A. Yes.

Q. Who is that?

A. Melissa Jeltema is a scientist who worked in -- works in the product evaluation division part of product development.

Q. Okay. Part of the product development --

Q. Directorate?

A. Directorate, yes.

Q. And Who is Dr. Peter Martin?

A. Dr. Peter Martin is a scientist who at that time may have been the manager of product evaluation division.

Q. And I believe you testified earlier that you were aware of an effort to evaluate denicotinized cigarettes?

A. I was aware that we were trying to develop a subjectively acceptable denicotinized product, yes. That was a major activity.

Q. Who's Frank Gullotta?

A. Frank Gullotta is a scientist at R&D at that time.

Q. And Kitty, G-u-n-s-t, Gunst?

A. Kitty Gunst I believe worked in

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product evaluation, in that area, but I'm -- I'm not sure what her title was at the time.

Q. Do you recall this memo?

A. Can I read it?

Q. Sure.

A. I think you asked me if I was familiar with this?

Q. Yes.

A. I don't recall having seen it.

Q. Okay. Do you remember the issue about whether or not removing nicotine from a cigarette would affect the behavior of smokers?

A. I don't recall being concerned about the behavior of smokers. I do recall being concerned about what the cigarette would taste like and whether or not smokers would find it acceptable.

Q. You don't remember an issue about the behavior of smokers that would be affected perhaps by the removal of nicotine?

MR. MURPHY: Object to the form of the question. You can answer.

A. I don't recall that issue. What I do recall at the time is we had set out to remove as

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much of the nicotine as possible and that's what we wound up doing. I don't recall what the caffeine removal is from coffee, but I think it's around 97, 98 percent of the caffeine is removed in decaffeinated coffee and that's what we did with tobacco.

Q. You see the second paragraph, "There are generally two opposing views concerning the importance of nicotine in cigarettes. The first is that nicotine is the primary reason that people smoke, and that without a certain level of nicotine smokers will quit. The other is that people smoke primarily out of habit and for the taste and that the removal of nicotine will have no large effect on this habit, assuming no large change in cigarette taste. The truth may, of course, lie somewhere between these two opposing views." Were you aware of those two views of nicotine?

A. I don't specifically recall that, and this apparently is Melissa Jeltema's two views that she put forward. I don't recall talking about those two views as being the only views on smoking. What I recall was that we felt the

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removal of nicotine should not have -- should not have an impact on the cigarette taste and the cigarette, but when we did it, we found out that wasn't the case.

Q. She writes about there being generally two opposing views concerning the importance of nicotine in cigarettes. Are you aware of other views concerning the importance of nicotine in cigarettes?

A. I don't recall sitting around discussing the views of the importance of nicotine per se in relationship at least to the denicotinized cigarette at that time. This is 1986.

Q. Do you recall if it was Philip Morris's view in 1986 that nicotine is the primary reason people smoke?

MR. MURPHY: I object to the form of the question. You can answer the question.

A. What I recall in 1986, when we were starting the development of the ART cigarette, was that we felt we could successfully remove the nicotine from that and produce a product that consumers were gonna accept. We spent a lot of

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effort in R&D to develop first the process and then the product.

Now, the product was not successful in the marketplace, did not meet the marketing requirements, but the cigarette with the 97 percent nicotine removed did meet the objectives of the marketing program, and we thought we had -- we had a real opportunity here to provide a product to the consumers that would give us an advantage in the marketplace.

Q. Do you know if in 1986 it was the view of Philip Morris that nicotine was the primary reason why people smoke?

MR. MURPHY: Objection; asked and answered. He just described Philip Morris's view in 1986.

MR. PAYTON: He told me about the ART program.

Q. Do you know if in 1986 it was the view of Philip Morris that nicotine is the reason why people smoke?

MR. MURPHY: Objection. You can answer the question.

A. Well, in 1986 we were doing this

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development, removing nicotine from tobacco. We thought we could be successful in producing a product that consumers would find acceptable, that we'd have an opportunity in a marketplace to be the only ones in there with that kind of product, and then we'd have a real advantage. If we -- we were doing it because we thought we could be successful, not that we thought we wouldn't be.

Q. Was the ART cigarette expected to be a niche cigarette, n-i-c-h-e? Do you know what I mean by niche?

MR. MURPHY: I object to the form of the question. If you understand you can answer it.

A. I understand the term used within a marketing point of view. But for you what does niche mean? A successful product or not successful product?

Q. For a small part of the market.

MR. MURPHY: Object to the form of the question.

A. Okay. At the time we thought that the de-nic cigarette would be probably not as

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attractive to -- would not be as attractive to the entire market, but to a segment of the market. But like decaffeinated coffee which started off being attractive to only a small segment of the market, it had grown over the years. What we thought at the time is that we could produce a good tasting, denicotinized cigarette that over time would grow, especially with so many people at the time that were moving down to the one milligram segment of the marketplace, that we really had an opportunity with ART technology to have an advantage our over competitors and to have a long-term growth possibility for our business. We put a lot of time and effort, people into developing this process and the product and marketing it. And in the cigarette market if you -- if you have a half a market share, that may sound like a niche product in others, in other marketplaces, but it's a successful introduction for a new cigarette.

Q. Do you know if the testing that is proposed in this memo ever took place, seeing if smoking behavior depends on the amount of

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nicotine left in cigarette?

A. I don't recall it taking place. As I -- I told you, what we tried to do was get to a 97 percemt nicotine reduced cigarette.

Q. And that's reduction of the nicotine that would be in the tobacco filler; is that correct?

A. That's correct.

Q. The 97 percent reduction?

A. 97 percent of the nicotine that was in the filler was removed in the ART cigarette.

Q. Do you recall how much nicotine was removed from the smoke?

MR. MURPHY: I object to the form of the question. If you understand it you can answer.

Q. Do you understand my question?

A. I have to think about that.

Q. Do you know if the reduction of the nicotine in the smoke was the same as the reduction of the nicotine in the filler?

MR. MURPHY: Objection. Do you mean commensurate percentage, John?

MR. PAYTON: Yes.

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A. I recall some of the delivery numbers. What I don't know is what the delivery numbers would have been for the same cigarette construction with -- with the raw tobaccos that hadn't been denicotinized. So it had to be close, I just don't know exactly what -- what the reduction was in the smoke.

Q. Now, when you became vice president in 1986, was Dr. Dunn still working at the research center?

A. Yes.

Q. And in what capacity was he still working there in 1986?

A. In 1986 I think his title was principal scientist, and when I arrived there, at that time he was reporting directly to my predecessor. So when I got there he reported to me also and he was involved in special projects at that time, as I recall.

Q. Who was your predecessor?

A. Max Hausermann.

Q. Did you and Max Hausermann switch jobs or something? Did he go to Europe?

MR. MURPHY: Object to the form;

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compound question. What question do you want him to answer?

Q. Did Max Hausermann go to Europe?

A. When I came to the United States, Dr. Hausermann returned to Europe as I think the title is vice president, R&D.

Q. Of Philip Morris International?

A. Philip Morris International, yeah.

Q. Did that position exist before he took it?

A. Essentially, he went over there and replaced me in my position and I replaced him in his.

Q. So you swapped jobs?

A. Yeah.

Q. Okay. And did you have a conversation with Dr. Hausermann about Dr. Dunn before you took over your responsibilities as the vice president of R&D, Philip Morris U.S.A.?

MR. MURPHY: Object to the form. You can answer.

A. I don't recall a specific conversation with Dr. Hausermann at the time, but in taking over a new job, you know, you talk to

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your predecessor about the people and what they're doing, et cetera.

Q. Did you know Dr. Dunn?

A. I did not know him before he reported to me.

Q. Okay. Were you familiar with any of his work?

A. No, I wasn't.

Q. Are you now familiar with Dr. Dunn's work?

A. I -- I have read about some of what Dr. Dunn has done in the past in newspapers. I -- I couldn't define all of his work either at Philip Morris or before that.

Q. Do you recall having read any of his papers?

MR. MURPHY: Time frame?

MR. PAYTON: Any time.

MR. MURPHY: Okay.

A. I would have read reports that he sent to me while -- while working for me, but I don't recall having gone back and read any of his work prior to going to R&D at that time.

Q. In 1986, when you took over R&D, were

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you aware that Dr. Dunn had done -- had performed research into nicotine?

A. I was not aware at that time of what research Dr. Dunn had been involved with earlier in his career when I went -- went to R&D at that time.

Q. Okay. Were you aware of research that he had performed concerning why people smoke?

A. As I said, I -- I have read the newspapers and I have seen -- what do you call it" -- quotes that have been associated with Dr. Dunn on work that he's done in the past, but I didn't go back and -- and read his previous work.

Q. Have you discussed Dr. Dunn with Dr. Charles?

A. I -- I don't recall now having a conversation specifically about that, but I dealt with Dr. Charles constantly while Dr. Dunn was also at R&D. There's a possibility that I could have, but it would be guessing to say I did.

Q. Turn to Page 2 of this Jeltema memo. There's a reference in numbered paragraph, the

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first numbered paragraph, number 5, you see that, "CNS (central nervous system) response of panelists"? Do you see that?

A. Yes.

Q. Do you know how you measure that, how you actually do it?

MR. MURPHY: I object to the form of the question. You can answer it if you understand it.

Q. How are central nervous system responses measured?

A. I'm not sure from reading this memo exactly what Melissa's talking about here. I'd have to guess at what she means in here relative to the response of panelists within each group.

Q. You don't know the answer?

A. I don't know what they were -- or she was talking about at that time.

Q. In the paragraph underneath that you see it begins "Experimental blends"? You see that paragraph? The text under number 5 there's a reference in there to a threshold, do you see that, there's two references to threshold? Do you know what that reference is?

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A. I'm not sure because it depends upon what -- what response they're talking about in panelists there, so I'm not sure what threshold they're talking about here.

MR. PAYTON: Would you mark this as Exhibit 8.

(Houghton Exhibit 8 for identification, memorandum, to Dr. Peter Martin, from Louise Wu, dated August 11, 1986, production numbers PA 727196 through 727204 or 2001300470 through 2001300478.)

Q. Dr. Houghton, you've just been handed what's been marked Houghton Exhibit 8, an August 11, 1986 memorandum from Louise Wu to Dr. Peter Martin. It has production numbers PA 727196 through 7204 or 2001300470 through 0478. The subject is "Results of the social aspects of smoking focus groups, July 7 through 10, 1986."

The first set of writing on here in the introduction refers to a 1985 concept study. Are you familiar with the 1985 concept study?

A. I'm familiar with the term concept study. I'm -- right now as I sit here I don't know what 1985 concept study means.

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Q. Okay. What does the term concept study refer to?

A. For me a concept study is when you list ideas that you wish to go out and evaluate with consumers, whether or not the consumers feel that idea or benefit, if you can describe it as a benefit, is of interest to the consumer. And then if you have several concepts that you put before them, you could have them rank them on level of interest to the consumer, what's an idea I really like, what's an idea I don't care about. That's in general what a concept study means to me.

Q. Who's Louise Wu?

A. She was a scientist who worked in product evaluation at that time, part of the product development area.

Q. Okay. She's a social scientist?

MR. MURPHY: Objection to form. You can answer.

A. I had the feeling she was not a social scientist. I had the feeling she might have been a chemist, but I just don't recall.

Q. Are you familiar with the social

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aspects of smoking project?

A. I'm not familiar with it, but I can take a look and see what it says here.

Q. Why don't you look and see if you recall reviewing or receiving this memo. If you look at the end you'll see that you're cc'd on this memo.

A. Okay.

Q. Do you recall this focus group study?

A. Not specifically, but I do recall that these concepts have been evaluated, these product concepts that are in here.

Q. The use of focus groups, would that happen frequently, infrequently?

A. Focus groups were used in order to assess ideas, in order to evaluate prototypes, to try and understand the relationship between the product itself and maybe the marketing approach, the advertising, et cetera, on a new brand. It would be kind of -- most of the focus group work was really done by market research in order to tie a new product with a new marketing campaign for a new cigarette to see if the product and the marketing campaign had met the marketing

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objective for -- for a new brand, et cetera.

From an R&D point of view, we would use focus groups to evaluate this kind of idea, to try to get open-ended communication back from consumers, look at concepts. There may have been other occasions focus groups were used.

Q. Could you go to Page 4, the second paragraph on the top. Do you recall if there were other instances where focus groups were used to evaluate the question "what is nicotine?"

MR. MURPHY: I object to the form of the question. I think the focus group evaluation is made clear by the document to have been the nicotine-free cigarette. Are you representing that it was something else, John?

MR. PAYTON: No, no.

Q. This is one of the things that was put to the focus groups. I'm just asking if you know of other uses of focus groups where the question "what is nicotine" was put to the focus group?

A. I don't -- I don't recall any others. In fact, what this focus group was for was to evaluate what smokers thought of the

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potential of a nicotine-free cigarette, would they be interested in it.

Q. Right. But they were asked what is nicotine, do you see that?

A. Yeah. I see --

MR. MURPHY: The document speaks for itself, John. What's your question?

A. I see it's written here.

Q. Do you recall any other focus groups where the question what is nicotine was put to the focus groups?

A. I don't recall any other focus group specifically set up to ask the question "what is nicotine." Nor was this focus group set up to ask that question either.

MR. PAYTON: Would you mark this as Exhibit 9.

(Houghton Exhibit 9 for identification, one-page document, to Mr. R.P. Heretick, from Mr. L.F. Meyer and Mr. H.L. Spielberg, dated February 28th, 1986, production number PB 110538 and 2031436681.)

Q. Dr. Houghton, you've been handed a one-page document dated February 28th, 1986, from

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L.F. Meyer to Mr. R.P. Heretick and Mr. H.L. Spielberg. It has production number PB 110538 and 2031436681. The subject is "Low tar/high nicotine cigarettes." You're not copied on this, but the memo refers to an interest you had, according to the memo that reads, "In the past couple of weeks Dr. Houghton has emphasized his interest in a low tar/high nicotine cigarette, e.g. 5 milligrams tar, 1 milligram nicotine." Do you recall having that interest?

A. I do recall asking Leo if I could smoke a -- a 5 milligram Merit Ultra Light with 1 milligram of nicotine in it just to see what it tasted like. And I do recall Howard Spielberg coming to my office with some handmade prototypes and I do recall sitting there with him and smoking them. And I recall that they were not very pleasant. They were aggressive and bad taste, mouth coating.

Q. These were specially made for you?

A. Yeah. Apparently -- Howard indicated that he had made them up to bring to me to smoke. So I smoked one and he did.

Q. The Merit Ultra Light wasn't 5

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milligrams tar and 1 milligram nicotine?

A. It was five -- 0.5, so apparently --

Q. Five milligrams of tar and 0.5 milligrams of nicotine?

A. Yes. And what he did is brought me a handmade cigarette where he had increased the nicotine delivery of that cigarette from .5 milligrams to 1 milligram and we sat there in the office and smoked them, and I guess Dr. Leo Meyer, based upon "for his smoking pleasure" comment in here already knew what I would think of them, or at least he had some -- some feeling that I wouldn't like it. And he was right.

Q. Do you recall why you were interested in a low tar/high nicotine cigarette?

A. I don't recall why it came up in conversation apparently with Leo. I mean I'd be guessing as to what prompted me to ask him at -- at that time for an opportunity to smoke something like that.

Q. Was that the end of this, or did you ask for another such high tar/low nicotine cigarette?

MR. MURPHY: Objection to form. You

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can answer.

THE WITNESS: What?

MR. MURPHY: Objection to form, you can answer.

A. What I recall is having smoked it at the time with Howard and it was not very pleasant. I don't recall asking for any more of them. You know, when I think about it there was -- there was a fair amount of interest about that time, at least in Europe, maybe in the U.K. on -- on the concept of cut the tar in half and -- and leave the nicotine levels the same. Froggett was interested in it. I don't know if that prompted me to ask at that time or a comment somebody made. I just don't recall what prompted it. It's a possibility that --

Q. What is Froggett?

A. Lord Froggett, I guess it's Peter Froggett at the time was the head of the, I think it's called ISC, Independent Scientific Committee in the U.K. and if I believe my memory holds right, at that -- in that time frame there was a lot of talk about reducing tar but not nicotine for the U.K. market. I don't know if that

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prompted it, but it's possible.

Q. At the same time, this is 1986, do you recall how a cigarette manufacturer, how Philip Morris would have gone about reducing the tar and keeping the nicotine at one?

MR. MURPHY: Objection; lack of foundation. You can answer the question.

A. Well, the only way they made these prototypes is apparently put in some nicotine salt to bring the deliveries up. Relative to your question, how to -- how to reduce the tar of a normal product, is that what you mean, or...

Q. You said there was a lot of talk about reducing tar but not nicotine?

A. Yeah, in the U.K.

Q. Yes.

A. At that time.

Q. Yes.

A. And it may have been Froggett's position that allowed it to get publicized.

Q. Okay.

A. I don't know how at that time you would do that.

Q. Had you been familiar with the

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technique of just spraying -- I take it this was, injecting, injecting nicotine citrate, tartrate or sulfate to bring nicotine delivery up to 1 milligram?

MR. MURPHY: Objection to form. You can answer.

A. Apparently -- apparently that was a suggestion of Leo to Heretick and Spielberg on how they might make this prototype for my smoking pleasure.

Q. Okay. Well, do you know what they mean by the word injected? How do you inject the nicotine citrate?

A. I don't know how they would have done it. All I know is he brought me a cigarette to smoke, said he hand made it.

Q. Now there's a reference here to a Dr. Ikeda. Do you see that reference? It's in the second sentence?

A. Yeah.

Q. Who is Dr. Ikeda?

A. He was a flavorist that worked in flavor development, but if I recall correctly, his expertise was as a wine -- grape expert.

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That was his background.

Q. But he worked for Philip Morris?

A. Yes.

Q. And there's a reference to Dr. Ikeda having prepared high alkaloid Bright tobacco cigarettes, do you see that?

A. Yes, I do.

Q. Do you remember what that was?

A. I don't recall, but I do know that all Bright cigarettes are not -- haven't been successful in the United States market. They're more British style products.

Q. I take it he is trying to achieve a low tar/high nicotine cigarette using high alkaloid Bright tobaccos?

MR. MURPHY: Objection. The document speaks for itself. What is your question?

Q. That is my question. Is that what you understand Dr. Ikeda to have done?

MR. MURPHY: Objection, objection; asked and answered. Let's move on, John.

Q. Is that what you understand Dr. Ikeda to have done?

MR. MURPHY: Same objection. You can

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answer again.

A. I'm just reading what it says here. I don't know exactly what his work was, but I can't believe that an all Bright tobacco cigarette was an objective for the U.S. marketplace in any way, shape or form.

Q. Do you recall test smoking Dr. Ikeda's cigarettes and the cigarettes that were injected with the nicotine citrate?

MR. MURPHY: Objection to form; compound. Maybe you could break that down. Which question are you asking?

Q. Dr. Houghton, you recall smoking some cigarettes that were presented to you after you expressed your interest in a low tar/high nicotine cigarette, correct?

A. I did smoke a cigarette that was designed, as I understand it, to deliver 5 milligrams, 1 milligram of nicotine, 5 milligrams of tar.

Q. And do you know if it was a cigarette that Dr. Ikeda had prepared?

A. My understanding it was a Merit Ultra Light that Mr. Spielberg had prepared to deliver

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one milligram of smoke nicotine. That's what I recall.

Q. Do you remember a program called Marlboro Gray?

A. Marlboro Gray? The name off the top of my head just doesn't ring a bell. If you have something I could look at I could probably understand what it is.

MR. PAYTON: Would you mark this as Exhibit 10.

(Houghton Exhibit 10 for identification, memorandum, to Mr. Johnston, from Mr. Ryan, dated February 24, 1987, production numbers PA 727079 through PA 727084 or 2001299790 through 2001299795.)

Q. You've just been handed, Dr. Houghton, a February 24, 1987 memo from Frank Ryan to Myron Johnston, subject is "Marlboro Gray." It says "Boston interviews," production numbers PA 727079 through PA 727084 or 2001299790 through 9795.

You'll see at the end, though your name is misspelled, I believe you are copied on it.

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A. Yes.

Q. I just want to know if you could just take a look at this, I don't think you need to read it, to see if if you remember what the Marlboro Gray program was. Is this also a type of focus group?

A. It looks like a ~~memorandum, a~~ RADIOS bunch of comments right now.

MR. MURPHY: John, you have two different questions pending. Which question do you want the witness to answer, does he remember what the Marlboro Gray program was or does this document refresh his recollection as to what it was?

Q. Does the document refresh your recollection as to what the Marlboro Gray program/project was?

A. Tell you the truth, I haven't looked enough at it to understand what he was -- what was being attempted to understand at the time. I don't -- I don't understand why this activity was termed Marlboro Gray, okay, in answer to one question. I never heard of Marlboro -- I don't ever recall hearing of Marlboro Gray as a program

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or an activity prior to this.

I don't know if you would call this a focus group, okay. I have the -- you know, he refers to it in here as a set of interviews, and I don't know if it was one on one, and I can't tell that from here, or in a group as you normally do focus groups. What it says in here is "Research was qualitative in nature and accounts and comments which follow are not to be considered as authoritative and quantitative," and my reaction in reading it is that's -- that statement's correct.

Q. You don't remember the program at all though?

A. I don't remember hearing the term Marlboro Gray, and I -- even after reading it, I'm not really sure what -- what it's -- what the meaning of the term is in here.

MR. PAYTON: Would you mark this as Houghton Exhibit 11.

(Houghton Exhibit 11 for identification, memorandum, to H.L. Spielberg, from Messrs. Gullotta, Hayes and Martin, dated August 2, 1989, production numbers PA 648903

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Houghton - Highly Confidential - Trade Secret through PA 648907 or 2023062280 through 2023062284.)

Q. Dr. Houghton, you've just been handed a document marked Houghton Exhibit 11, an August 2, 1989 memo, from F.P. Gullotta, C.S. Hayes and B.R. Martin to H.L. Spielberg, subject is "When nicotine is not nicotine," production numbers PA 648903 through PA 648907 or 2023062280 through 2284.

If you look at the last page you'll see that you're cc'd. Are you familiar with pattern-reversal evoked potential studies?

A. I'm familiar with the term. I know that it is a measurement that can be taken that can measure response that consumers have to smoking a cigarette, the taste and the odor and the feeling of the cigarette when they smoke it.

Q. Okay. It's a means of testing central nervous system responses to smoking?

MR. MURPHY: Objection to form. You can answer.

A. Well, the pattern-reversal evoked potential, and I'm not an expert in this, in my understanding measures, you can measure response,

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I guess it's brain wave response, when somebody takes a puff, as to how they react to the taste, the odor, the mouth/throat feeling of it, and it's done through measuring electrical current through nerves, and after that I think that's about the limit of my -- my general understanding.

Q. Have you ever been measured in this way?

MR. MURPHY: You mean has he ever been a subject of one of these?

MR. PAYTON: Yes.

Q. Have you ever been a subject?

A. I don't recall having been a subject. I do recall seeing the equipment and how testing was done.

Q. Okay. Do you know if Philip Morris pioneered the use of pattern-reversal evoked potential studies to measure responses to smoking?

MR. MURPHY: Objection to the form of the question: You can answer the question.

A. I don't know if we -- if Philip Morris was the first one to ever measure a pattern-reversal evoked potential or not.

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Q. The second sentence in here refers to fillers being oversprayed with equimolar nicotine. Do you know what that term means, equimolar nicotine?

A. Where -- which paragraph?

Q. It's the fourth line.

MR. MURPHY: Fourth line?

A. Oh, the first one.

Q. It reads "The fillers were oversprayed with equamolar nicotine as either the base (FB) or as the citrate (NC)."

A. I don't know exactly what he's referring to, but I assume he means same weight, and that's an assumption.

Q. Okay. Reference to the base, the FB refers to free base; am I correct?

MR. MURPHY: Objection to form. You can answer.

A. It would be an assumption on my part, okay, because he doesn't define it in here, unless he defines it someplace else.

Q. Are you familiar with the free base nicotine?

A. I know what --

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MR. MURPHY: The term?

MR. PAYTON: Yes.

A. I'm -- I'm aware that nicotine can be described as the free base. In fact, it is nicotine.

Q. It's nicotine, but it can be in a free base form?

A. Well, it's --

MR. MURPHY: Objection to the form of the question. I think we're just getting terminologically confused. If you understand the question, you can answer.

A. Nicotine is a base by definition.

Q. Isn't it an acidic form of nicotine?

A. Yeah, but --

Q. It's nicotine, citrate and acid?

A. Then it's a nicotine salt.

Q. So you can have either nicotine as a base or nicotine as a salt?

A. Right.

Q. Okay. And is the nicotine that is in the form of a base often referred to as free base nicotine?

A. I have heard it referred to that way,

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04:50:08 yes:

04:50:10 MR. PAYTON: I think we have to

04:50:12 stop. I can't go one and a half minutes.

04:50:14 THE VIDEO OPERATOR: This is the end

04:50:16 of videotape number 2. We're going off the

04:50:20 record. The time on the screen is 4:50:25.

04:50:24 (A recess was taken.)

04:56:02 (Time noted: 4:50 p.m.)

KENNETH S. HOUGHTON

Subscribed and sworn to before me
this 29th day of April, 1996.

Brenda A. Wright
Notary Public
State of Virginia
County of Chesterfield

My Commission Expires January 31, 2000

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C E R T I F I C A T E

STATE OF NEW YORK)

: ss.

COUNTY OF NEW YORK)

I, GAIL F. SCHORR, a Certified Shorthand Reporter and Notary Public within and for the State of New York, do hereby certify:

That KENNETH S. HOUGHTON, the witness whose deposition is hereinbefore set forth, was duly sworn by me and that such deposition is a true record of the testimony given by the witness.

I further certify that I am not related to any of the parties to this action by blood or marriage, and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 25th day of July, 1995.

Gail F Schorr

GAIL F. SCHORR, C.S.R.

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E X H I B I T S

DESCRIPTION	PAGE	LINE
(Houghton Exhibit 1 for identification, Dr. Houghton's resume.)	4	18
(Houghton Exhibit 2 for identification, document entitled "Nicotine-related research wholly funded by Philip Morris, May 1984 through March 1994," production numbers PA 175371 through PA 175594.)	37	6
(Houghton Exhibit 3 for identification, report entitled "Nicotine Transfer to Smoke - Investigations of Brazilian Cigarettes and Review of Some Factors Affecting Nicotine Transfer to Smoke," by an R.M. Ikeda and a J.R. Hearn, production numbers PA 918268 through PA 913824 or 2022221948 through 2022222004.)	60	15
(Houghton Exhibit 4 for identification, document entitled "Quarterly smoking and health report - October-December 1983, dated January 17, 1984, to Dr. M. Hausermann, from T.S. Osdene, production numbers PA 730501 through PA 730507 and 2021112001 through 202111 2017.)	93	19
(Houghton Exhibit 5 for identification, memorandum entitled "Quarterly report July to September 1975, research department," to Mr. Resnik, from Mr. Osdene, dated September 30, 1975, production number PA 636540 through PA 636543 or 1001515060 through 1001515063.)	100	14

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(Houghton Exhibit 6 for identification, document entitled "Confidential," " Table - Competitive analysis, first draft organization, first draft production to follow," production numbers PA 730437 through PA 730457 or 2020154466 through 2020154486.).....	108	10
(Houghton Exhibit 7 for identification, document, to Dr. Peter Martin, from Melissa Jeltema, dated June 10, 1986 subject, testing of denicotinized cigarettes, production numbers PA 725480 and PA 725481 or 2001260246 through 2001260247.).....	111	9
(Houghton Exhibit 8 for identification, memorandum, to Dr. Peter Martin, from Louise Wu, dated August 11, 1986, production numbers PA 727196 through 72 7204 or 2001300470 through 2001300478.)..	125	7
(Houghton Exhibit 9 for identification, one-page document, to Mr. R.P. Heretick, from Mr. L.F. Meyer and Mr. H.L. Spielberg, dated February 28th, 1986, production number PB 110538 and 2031436681.).....	129	18
(Houghton Exhibit 10 for identification, memorandum, to Mr. Johnston, from Mr. Ryan, dated February 24, 1987, production numbers PA 727079 through PA 727084 or 2001299790 through 2001299795.).....	137	11
(Houghton Exhibit 11 for identification, memorandum, to H.L. Spielberg, from Messrs. Gullotta, Hayes and Martin, dated August 2, 1989, production numbers PA 648903 through PA 648907 or 2023062280 through 2023062284.).....	139	21

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